

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 59.0053PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA416)	
International application No. PCT/B2004/000506	International filing date. (day/month/year) 27.02.2004	Priority date (day/month/year) 28.02.2003
International Patent Classification (IPC) or both national classification and IPC E21B47/12		
Applicant SCHLUMBERGER CANADA LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 28.09.2004	Date of completion of this report 02.06.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Lorne, B Telephone No. +31 70 340-1002 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/IB2004/000506**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-12 as originally filed

Claims, Numbers

1-27 as originally filed

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-27
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-27
Industrial applicability (IA)	Yes: Claims	1-27
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. The following documents are referred to in this communication:

D1 : US 5 365 229 A (GARDNER WALLACE R ET AL) 15 November 1994 (1994-11-15)

D2 : WO 01/49001 A (SCHLUMBERGER CA LTD ; SCHLUMBERGER SERVICES
PETROL (FR); SCHLUMBERGER) 5 July 2001 (2001-07-05)

2. Document D1, which is considered to represent the most relevant state of the art,
discloses a wireline logging method comprising the following steps :

- determining an operating characteristic (the attenuation) of a wireline cable at the
surface (see fig.5), wherein the operating characteristic is indicative of the wireline
cable's data rate capacity;
- deducing a down-hole value of the operating characteristic (column 3, lines 51-54) from
fig.5 once the drill string is in the borehole.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The subject matter of claim 1 differs from D1 in that :

- (a) a data rate requirement associated with a tool string to be connected to a
wireline cable is estimated;
- (b) a down hole value of the operating characteristic is modelled before inserting the
wireline cable is inserted into the well bore;
- (c) the tool string is modified if the estimated data rate requirement does not match the
down hole data rate capacity.

The technical features (a) and (c) are not considered as involving an inventive step (Article
33(3) PCT), since it is normal in design to specify a data rate based on the requirements
for the tools and the engineer's judgement (see D2 page 3, lines 20-23, or in the present
application page 1). From D1 (fig.5), it appears straightforward for the skilled person to
derive from the estimated attenuation in a borehole, the down hole rate capacity and to
modify the tool string accordingly, if this capacity did not match the estimated data rate
requirement.

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However, documents D1 and D2 do not teach the technical feature (b). In the present invention, the modelling of the expected operating characteristic changes of the data rate capability of the cable, prior to placing the tool string in the borehole, permits one to reconfigure the tool string if necessary, in order to match the down hole data rate capacity. None of the document cited in the search report suggest the modelling of a data rate capability prior to placing the tool string in the borehole.
Therefore claim 1 involves an inventive step.

3. The same reasoning applies, *mutatis mutandis*, to the subject matter of the corresponding independent system and computer-readable medium claims 12,21, which therefore are also considered new and inventive.